

Claims:

1. A bale comprising a sealed chamber having an internal volume at an initial pressure less than ambient atmospheric pressure, the internal volume comprising a bulk material.
- 5 2. The bale of claim 1 wherein the bulk material comprises a bulk commodity product.
3. The bale of claim 1 wherein the internal volume of the chamber has an initial pressure of less than 101 kilo PASCAL's.
- 10 4. The bale of claim 1 wherein the package comprises a substantially cuboidal shape.
5. The bale of claim 1 wherein the chamber comprises a plurality of walls, including a top wall and bottom wall and side walls and the walls are sealed to each other along their edges and at least one of the walls comprises at least one evacuator.
- 15 6. The bale of claim 1 wherein the chamber comprises walls and the walls comprise a polymeric film
7. The bale of claim 6 wherein the polymeric film comprises polyethylene, polypropylene, ethylene vinyl alcohol polymer, nylon, mylar, polyethylene terephthalate, polyethylene terephthalate glycol, polyimides, or polyamides.
- 20 8. The bale of claim 5 wherein the walls comprise a polymeric film
9. The bale of claim 8 wherein the polymeric film comprises polyethylene, polypropylene, ethylene vinyl alcohol polymer, nylon, mylar, polyethylene terephthalate, polyethylene terephthalate glycol, polyimides, polyamides, Tyvek® protective material or Valéron® Strength film.
- 25 10. The bale of claim 8 wherein the walls further comprise a moisture barrier element

11. A package comprising a sealed chamber having an internal volume at an initial pressure less than ambient atmospheric pressure, the internal volume comprising fibers.

12. The package of claim 11 wherein the fibers comprise: acetate.

5 13. The package of claim 11 wherein the internal volume of the chamber has an initial pressure of less than 101 kilo PASCAL's.

14. The package of claim 11 wherein the package comprises a substantially cuboidal shape.

10 15. The package of claim 11 wherein the chamber comprises a plurality of walls, including a top wall and bottom wall and side walls and the walls are sealed to each other along their edges and at least one of the walls comprises at least one evacuator.

16. The package of claim 11 wherein the chamber comprises walls and the walls comprise a polymeric film

15 17. The package of claim 16 wherein the polymeric film comprises polyethylene, polypropylene, ethylene vinyl alcohol polymer, nylon, mylar, polyethylene terephthalate, polyethylene terephthalate glycol, polyimides, polyamides, Tyvek® protective material or Valéron® Strength Film.

18. The package of claim 15 wherein the walls comprise a polymeric film

20 19. The package of claim 18 wherein the polymeric film comprises polyethylene, polypropylene, ethylene vinyl alcohol polymer, nylon, mylar, polyethylene terephthalate, polyethylene terephthalate glycol, polyimides, polyamides, Tyvek® protective material or Valéron® Strength film.

20. The package of claim 18 wherein the walls further comprise a moisture barrier element.

25 21. The package of claim 18 wherein the walls comprise a gas barrier.

22. The package of claim 20 wherein the element comprises aluminum.

23. The package of claim 11 wherein the sealed chamber comprises a bag.

24. The package of claim 11 wherein the fibers have a substantially uniform density throughout their mass.

5 25. The package of claim 24 wherein the density of the fibers is increased in comparison to the density of a corresponding volume of the fibers in non-vacuum conditions.

26. The package of claim 25 wherein the density increase is 1.1 to 1.5 times.

10 27. The package of claim 11 wherein the weight of the fibers is increased in comparison to the weight of a corresponding volume of the fibers in non-vacuum conditions.

28. The package of claim 27 wherein the weight increase is 1.1 to 1.5 times.

15 29. The package of claim 11 wherein the flatness of the package is increased in comparison to the flatness of a corresponding volume of fibers restrained in non-vacuum conditions.

30. The package of claim 11 wherein the package comprises a substantially cuboidal shape and the height of the center of a top wall is less than 3 cm greater than the height of an edge of the top wall.

20 31. The package of claim 15 further comprising an additional packaging material surrounding the sealed walls.

32. The package of claim 11 wherein the package comprises an embossed region.

33. A package comprising a sealed chamber having an internal volume at an initial pressure less than ambient atmospheric pressure, the internal volume comprising a fibrous material.

34. The package of claim 33 wherein the fibrous material comprises a bulk commodity product.

35. A packaging system comprising:
a sealable chamber having an internal volume sufficient to contain a volume of a
5 bulk material to be packaged.

36. The packaging system of claim 35 further comprising means for evacuating the sealable chamber.

37. The packaging system of claim 35 wherein the sealable chamber comprises a plurality of walls and the system further comprises means for sealing edges of the walls
10 to each other.

38. The packaging system of claim 35 wherein the bulk material comprises fibers.

39. The packaging system of claim 36 wherein the bulk material comprises a fibrous material.

15 40. A method of packaging fibers comprising:
forming a package having an internal volume;
placing fibers in the internal volume;
sealing the package; and
evacuating the internal volume.

20 41. The method of claim 40 further comprising compressing the fibers.

42. The method of claim 40 wherein the package comprises a substantially cuboidal package comprising a top wall, a bottom wall and a plurality of side walls and the method comprises:

25 providing a bottom wall;
placing fibers on the bottom wall;
placing a top wall on the fibers;

compressing the fibers between the top and bottom walls by applying a compressive force;
placing side walls around the compressed fibers;
sealing the side walls to the top and bottom walls and each other to form a sealed
5 chamber having an internal volume comprising the fibers;
evacuating the internal volume; and
releasing the compressive force.

43. The method of claim 41 wherein the package comprises a substantially cuboidal package comprising a top wall, a bottom wall and a plurality of side walls and
10 the method comprises:
providing a bottom wall;
placing fibers on the bottom wall;
placing a top wall on the fibers;
compressing the fibers between the top and bottom walls by applying a
15 compressive force;
placing side walls around the compressed fibers;
sealing the side walls to the top and bottom walls and each other to form a sealed chamber having an internal volume comprising the fibers;
releasing the compressive force; and
20 evacuating the internal volume after an equilibrium pressure of the fibers has been reached.

44. A method for packaging resilient fibers comprising: providing fibers; compressing the fibers; forming a sealable chamber around the fibers; sealing the chamber; evacuating the chamber and then releasing compression.

25 45. A method for packaging resilient fibers comprising: providing fibers, forming a sealable chamber around the fibers; sealing the chamber; compressing the fibers while allowing air within the chamber to escape to thereby at least partially evacuate the chamber; and then releasing compression.

46. A method for packaging resilient fibers comprising: providing fibers; compressing the fibers; restraining the compressed fibers; releasing compression; forming a sealable chamber around the fibers; sealing the chamber; evacuating the chamber and then releasing the restraint.

5 47. The method of claim 44 further comprising: surrounding the sealed package with additional packaging material.

48. An apparatus for packaging fibers comprising: materials for surrounding fibers to form a chamber and an evacuation system.

10 49. The apparatus of claim 48 further comprising a device for compressing the fibers.

50. The apparatus of claim 49 wherein the evacuation system comprises a vacuum pulling device and an associated hose.

15 51. The apparatus of claim 50 wherein the device for compressing the fibers comprises a ram.